

The image is a collage of three photographs. The top-left photo shows a close-up of dry straw. The top-right photo shows dark, moist soil. The bottom photo shows a wall made of straw bales with a circular window made of sticks.

BASEhabitat summer school 2014
Altmünster - Austria

STRAW AND EARTH WORKSHOP

Stefan Neumann



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General information

sedimentation test



= water
= clay



= water
= silt
= clay

For the sedimentation test you need a measurement cub, the earth you would like to test and water.

Mix it and leave the mixture for a week. if you need a faster result you can add salt.

The earth content will start to set, dependant on the ingredients, water stays on top , there should be a layer of silt and clay will be on the bottom.

The material to use for cob, lightloam, wattle and daub and spaliér technique mixture should have 15 to 20 % clay.

measurements

measurements depend on the material
the proportions reflect the work at
BASEhabitat.

Ingredients /
Ratio

earth



sand



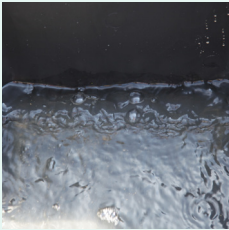
long straw



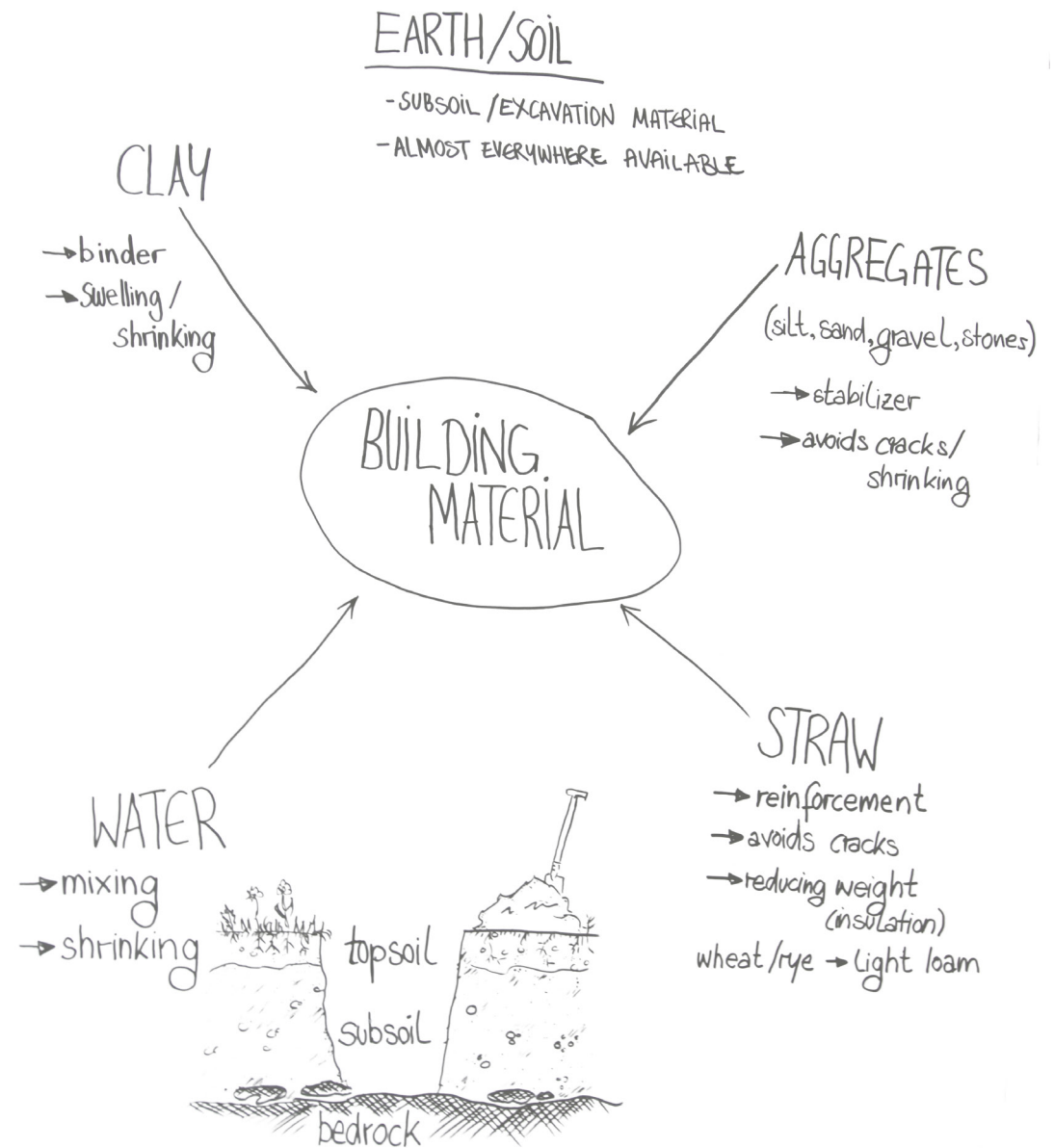
short straw



water



cob	1	:	1	+	estimated	+	+	estimated	
lightloam mix / slick	1			:				1	
wattle and daub	1	:	1	+		estimated	+	estimated	
spaliér technique	1	:	1 + (1/2 fine)	+	estimated	+	+	estimated	
plaster	1	:	1 (fine)			+	estimated	+	estimated



Cob

USAGE

- loadbearing wall
- interior / exterior walls
- in between a timber frame construction
- ceiling
- plaster / adobe / panels

CHARACTERISTICS

- “high” strength
- thermal mass (heat storage)
- fire protection
- good sound protection

lightloam (<1200 kg/m³)

density	Lamda-value (w/mk)
1400	0,59
·	·
1700	0,80

WALL THICKNESS

- between 30 - 50 cm
- minimum for thermal mass 40 cm



place the earth and sand on plastic, mix it. add water, after mixing add straw. when finished let the cob sit for a while.

put a layer of bitumen on the foundation and compact it by walking on it.

let the cob surface dry and cut with a sharpened spate





Lightloam

USAGE

- (-straw-bale-building)
- interior / exterior walls
- in front of an existing wall
- in between a timber frame construction
- ceilings
- roofs
- (floors)

CHARACTERISTICS

- not-loadbearing
- insulation
- fire protection
- suff. soundprotection
- suff. heat storage

lightloam (<1200 kg/m³)

density	Lamda-value (w/mk)
300	0,1
.	.
800	0,25
.	.
1200	0,47

WALL THICKNESS

- in front existining wall - up to 15 cm
- in between timber frame up to 30 cm

(mind drying process!)



taking the finger out of the slick the drop should stay on the finger tip

mixing water and earth throughfully

the straw should be covered by slick, it should not be soked with too much!



Trasses are used to stabilize the construction.

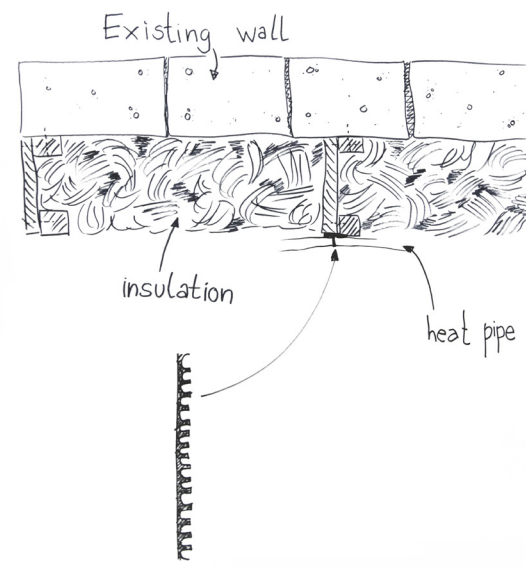
Placing layer by layer of straw mixture into the foarmwork . Corners are important!

Compressing the material up to the top until it can't go any further. Than change the formwork

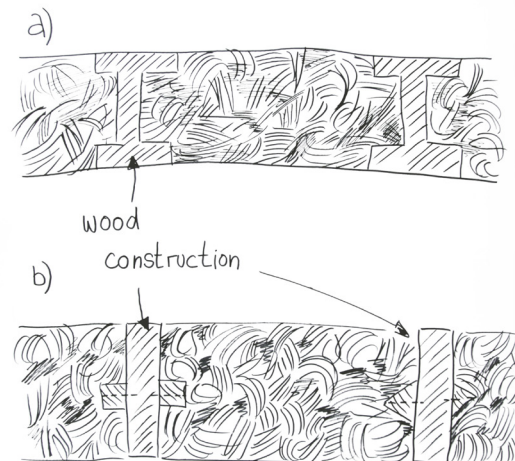




Exterior or interior insulation



LIGHT-LOAM INFILL



Wattle and daub

- infill walls
- not load bearing



for wattle and daub it is important to use short straw. once the mixture is prepared you throw the mass onto the structure and flatten it with your hand.

Spaliér technique

- infill walls
- not load bearing



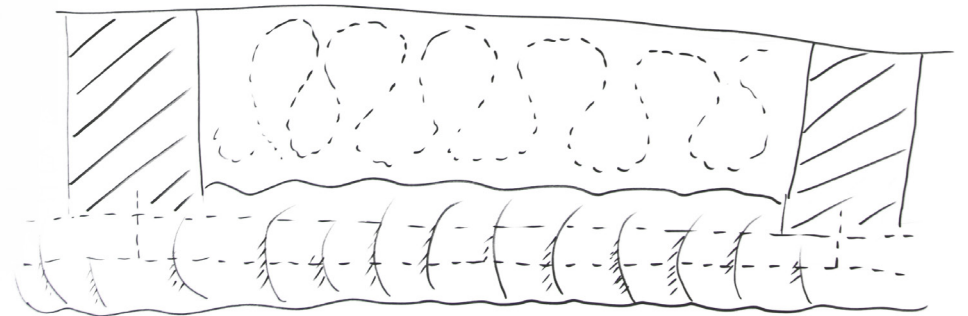
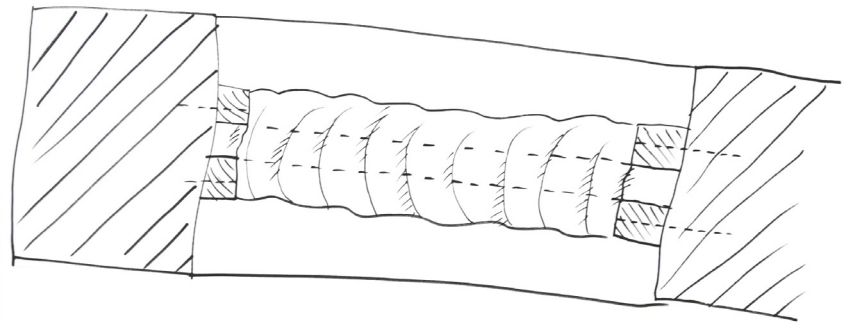
for the spaliér technique use the long straw. produce flat long patches and fold them around the wooden construction. afterward plastering

Plaster

- 2-layers
 - first layer 2/3 cm
 - second layer 0,5 - 1 cm



SPALIÉR-TECHNIQUE







Reinforced seismographic model



Seismographic model



OPEN SOURCE - CREATIVE COMMONS!

WORKSHOP- LEADER: Stefan Neumann

ASSISTENT: Jule von Hertell

LAYOUT: Lola Seibt

PICTURES: Lola Seibt

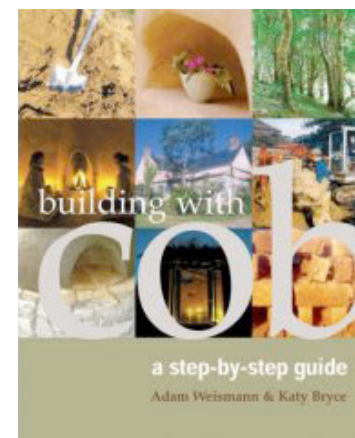
DRAWINGS: Jule von Hertell

PROOF READING: Iris Nöbauer

The following pages reflect the workshop straw and earth at the BASEhabitat summer school 2014. The documentation is produced for reflection and remembrance. You are more than welcome to add, change, correct the content by sending an e-mail to:

lola.seibt@noerpel.net

Thank you BASEhabitat team for your appreciation and - the fantastic work you did!



adam weismann & katy bryce

*building with cob
a step-by step guild
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